

DOCKETED	
Docket Number:	99-AFC-01C
Project Title:	Elk Hills Power Project - Compliance
TN #:	266897
Document Title:	Corrected_Appendix D Soil Management Plan_Part B
Description:	This upload replaces and supersedes docket upload TN# 266438 for CRC's Appendix D, Soil Management Plan for CalCapture, Part B
Filer:	Daniel I. Padilla
Organization:	California Resources Corporation
Submitter Role:	Applicant
Submission Date:	10/29/2025 9:22:28 AM
Docketed Date:	10/29/2025

FINAL SOIL MANAGEMENT PLAN

Former NPR-1 Closure Project

Elk Hills Oil Field

Elk Hills, California

Prepared for:

California Resources Elk Hills, LLC.
900 Old River Road
Bakersfield, CA 93311

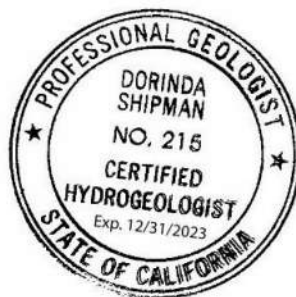
Prepared by:

Langan Engineering & Environmental Services, Inc.
18575 Jamboree Road, Suite 150
Irvine, California 92612



A handwritten signature of Elizabeth Kimbrel in black ink.

Elizabeth Kimbrel, PE
Senior Project Engineer



A handwritten signature of Dorinda Shipman in black ink.

Dorinda Shipman, PG, CHG, CEM
Principal/Vice President

16 November 2022
Project No. 700040402

LANGAN

AOC 030-003

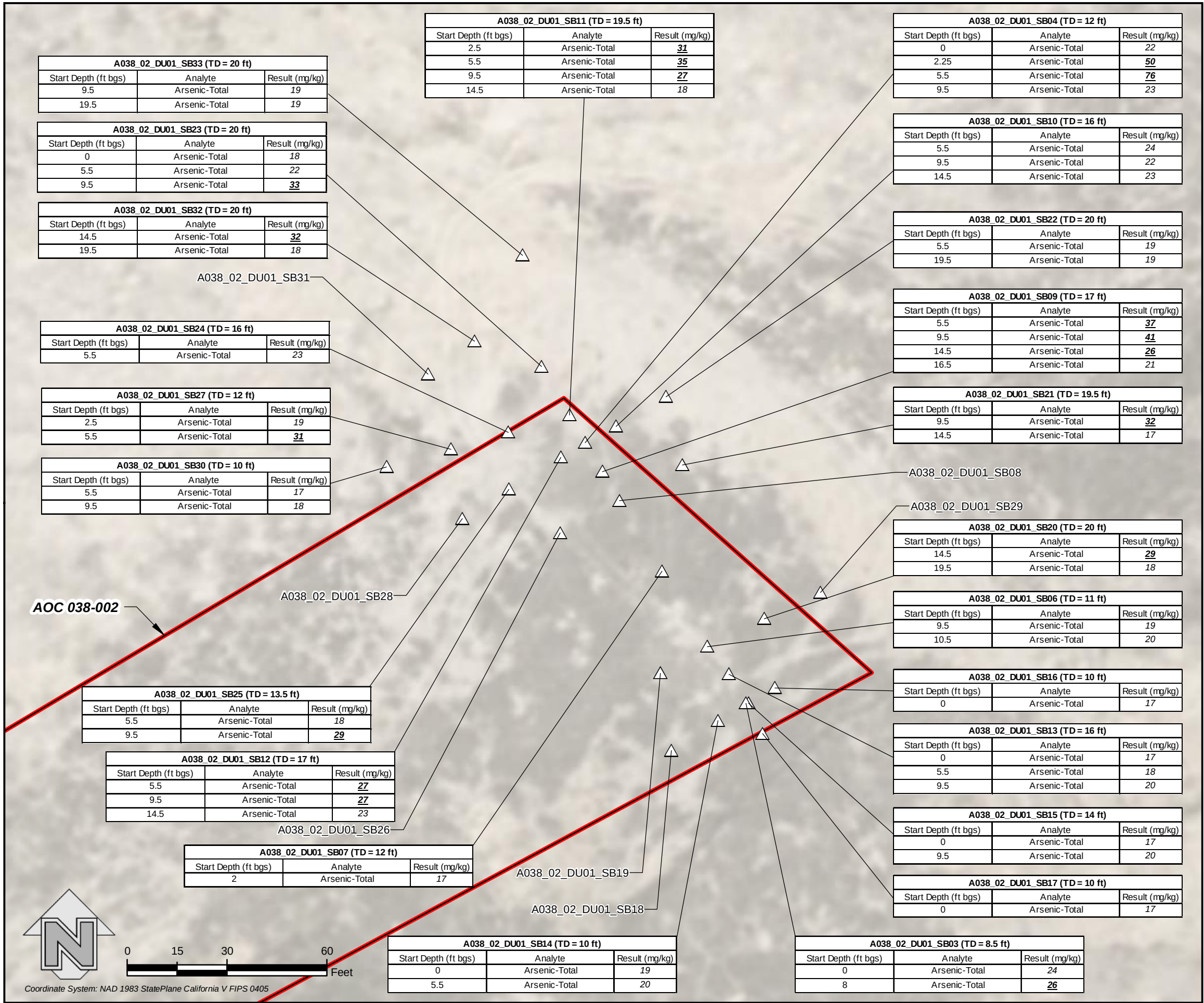
Reference

Ahtna, 2020. *Draft Remedy Selection and Statement of Basis AOC 030 003*. 29 May.

AOC 038-002

Reference

Ahtna, 2018. *Draft Removal Action Work Plan AOC 038-002*. 21 September.



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Legend

- △ Soil Boring
- ⊙ Well
- Red outline Preliminary Area of Concern Boundary

Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	26

Notes

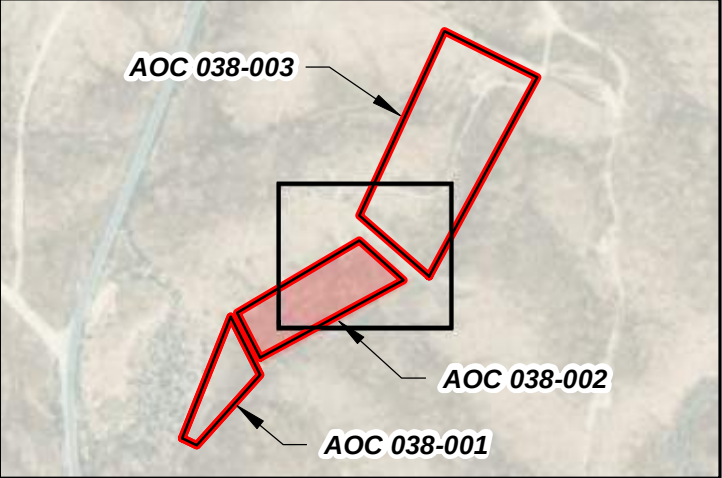
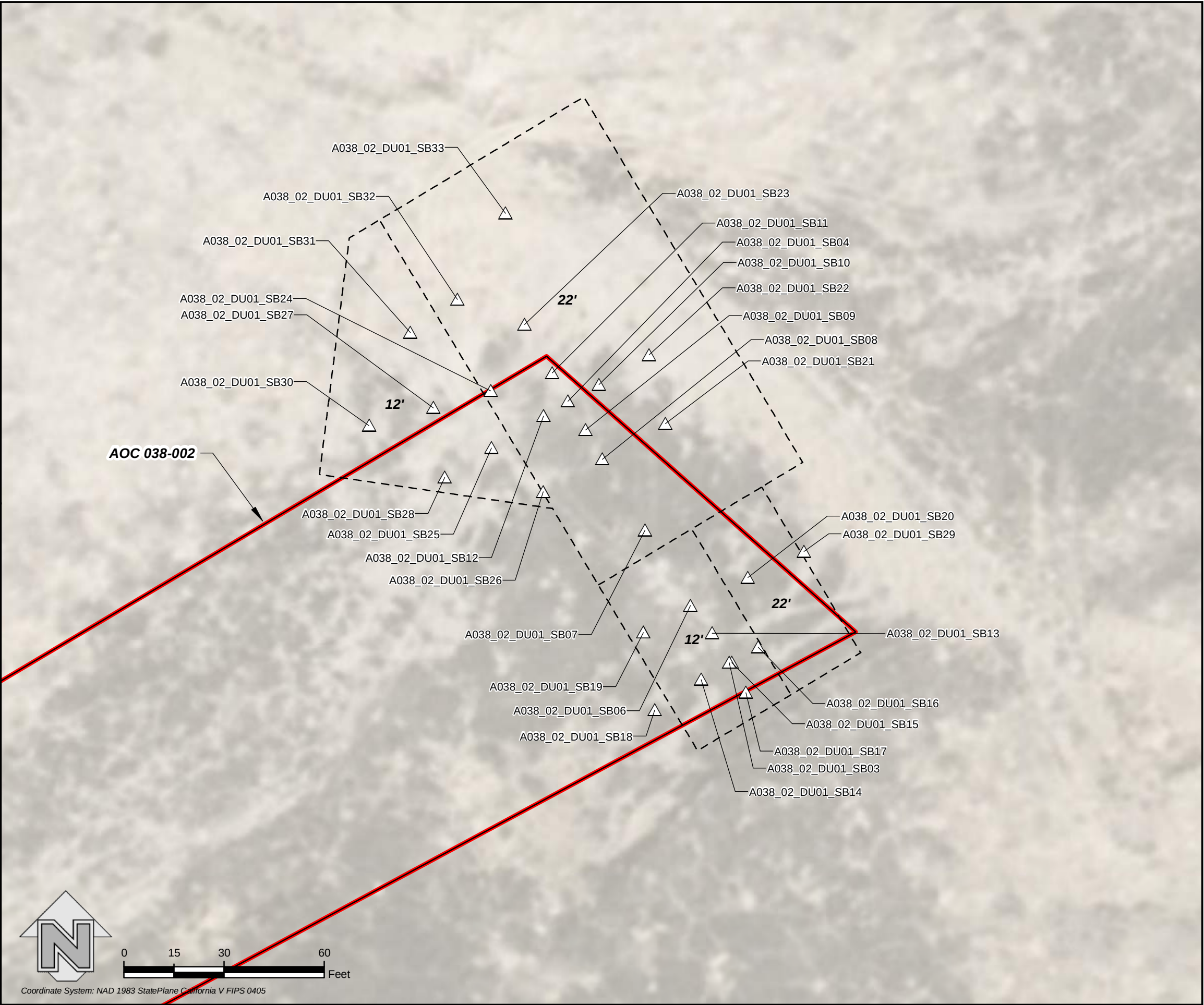
- Aerial photography provided by Kern County, CA, 2011.
- Survey data provided by DOE, 2011.
- Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 038-002 boundary is preliminary and subject to change.
- Well location provided by DOGGR, 2018.
- TD = total depth of soil boring below ground surface.

COC RESULTS EXCEEDING SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 038-002	18R	3.0-1



Legend

- 22' Depth of Impacted Soil
- △ Soil Boring
- - - Impacted Area
- Red outline Preliminary Area of Concern Boundary

Notes

- Aerial photography provided by Kern County, CA, 2011.
- Survey data provided by DOE, 2011.
- Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 038-002 boundary is preliminary and subject to change.

AREA EXCEEDING CLEANUP GOAL

FORMER NAVAL PETROLEUM RESERVE NO.1

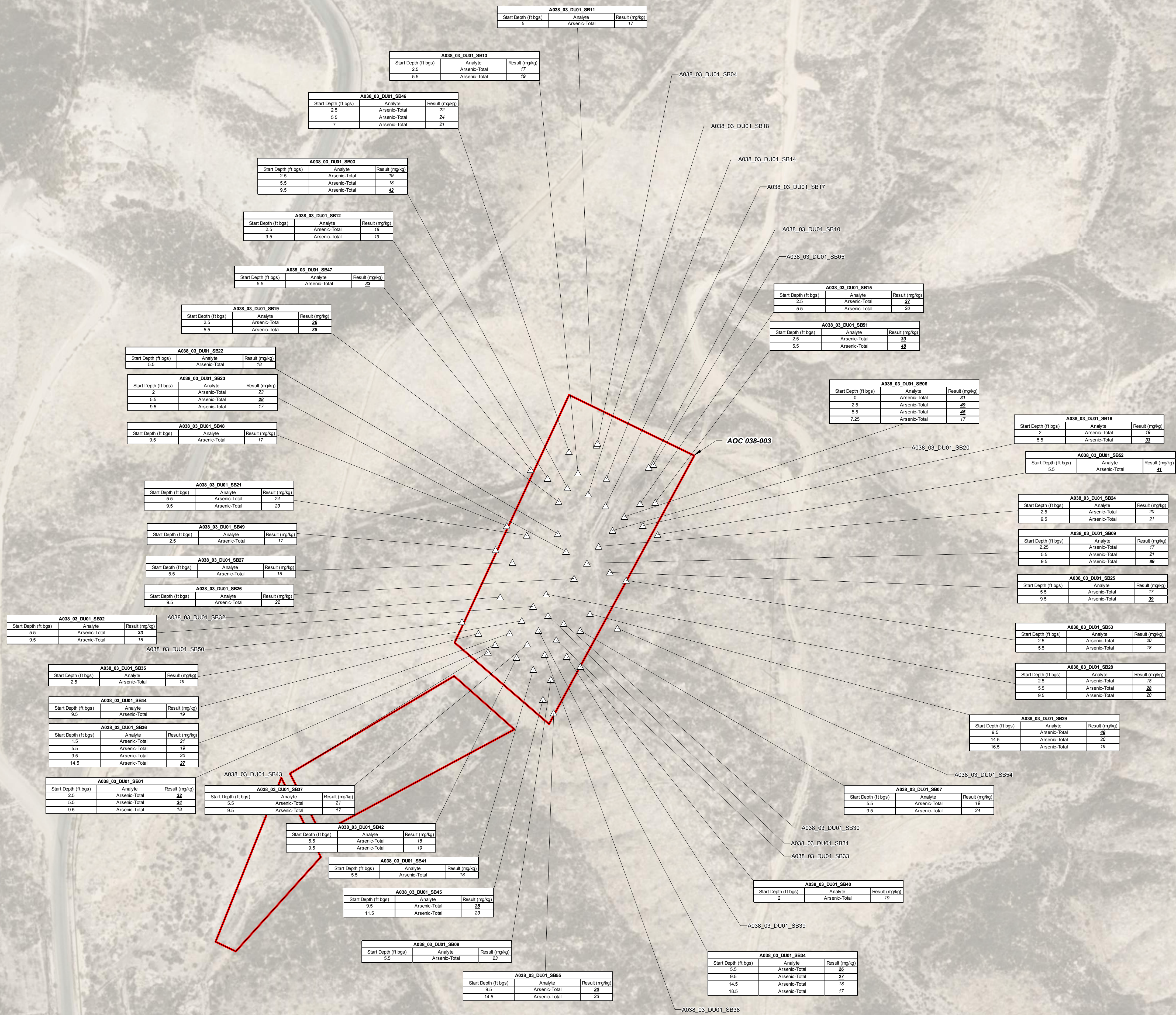
KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 038-002	18R	4.3-1

AOC 038-003

Reference

Ahtna, 2018. *Draft Remedial Action Work Plan for AOC038_003*. 26 September.



Legend

- △ Soil Boring Location
- Red Outline Preliminary Area of Concern Boundary

Screening Levels		
Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	26

- Notes:**
- Aerial photography provided by Kern County, CA. 2011.
 - Survey data provided by DOE, 2011.
 - Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
 - AOC 038-003 boundary is preliminary and subject to change.
 - Italicized* value indicates result greater than the background level for arsenic.
 - Bold** value indicates result greater than residential screening level.
 - Bold, italicized, and underlined** value indicates result greater than or equal to the action level for arsenic.

AOC 038-003 SAMPLE RESULTS EXCEEDING SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

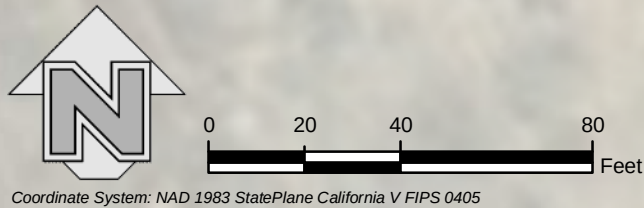
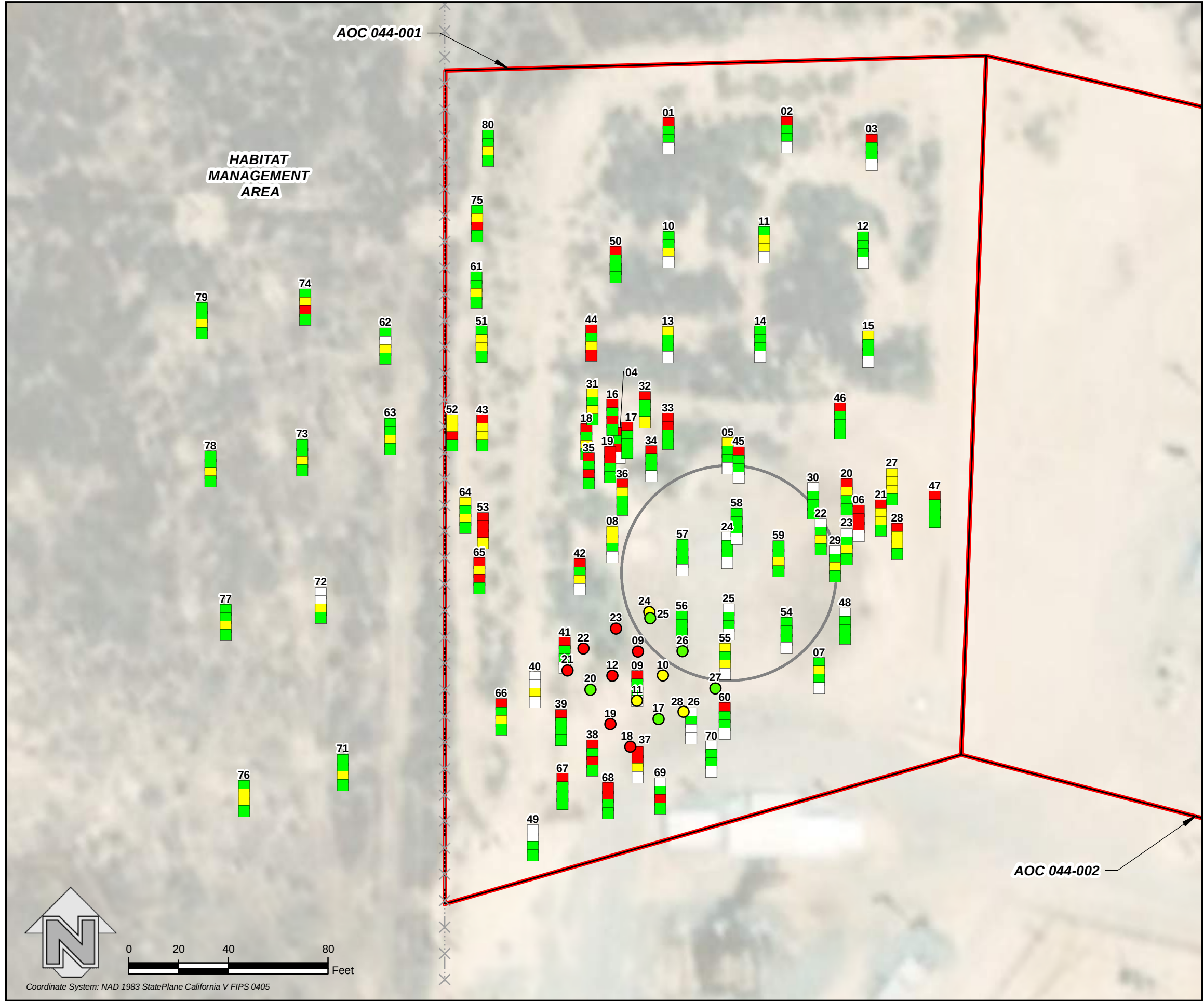
KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 038-003	18R	1

AOC 044-001 and -002

Reference

Ahtna, 2020. *Draft Remedy Selection and Statement of Basis AOC 044-001 and AOC 044-002*. 3 April.



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3100 Beacon Boulevard
West Sacramento, CA 95691

AOC 044-001 **AOC 044-002**

Legend

07 - Location ID*

Soil Boring

Surface Sample

Soil Boring Depth Range

0-0.5 ft bgs

>0.5-3 ft bgs

>3-11 ft bgs

>11-23 ft bgs

Analytical Result

No Data Within Depth Range

Arsenic Result ≤ Background Level (16 mg/kg)

Arsenic Result > Background Level (16 mg/kg) and < Action Level (26 mg/kg)

Arsenic Result ≥ Action Level (26 mg/kg)

Arsenic Result ≤ Background Level (16 mg/kg)

Arsenic Result > Background Level (16 mg/kg) and < Action Level (26 mg/kg)

Arsenic Result ≥ Action Level (26 mg/kg)

Fence

Approximate Location of Former Tank Setting

Preliminary Area of Concern Boundary

Notes

- Aerial photography provided by Kern County, CA, 2011.
- Survey data provided by AFSI, 2019.
- Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 044-001 boundary is preliminary and subject to change.
- Arsenic results are from the 2014 RFI and the 2017-2018 Supplemental Sampling Investigation.
- Former tank location sourced from historical aerial photography provided by Kern County (1981).

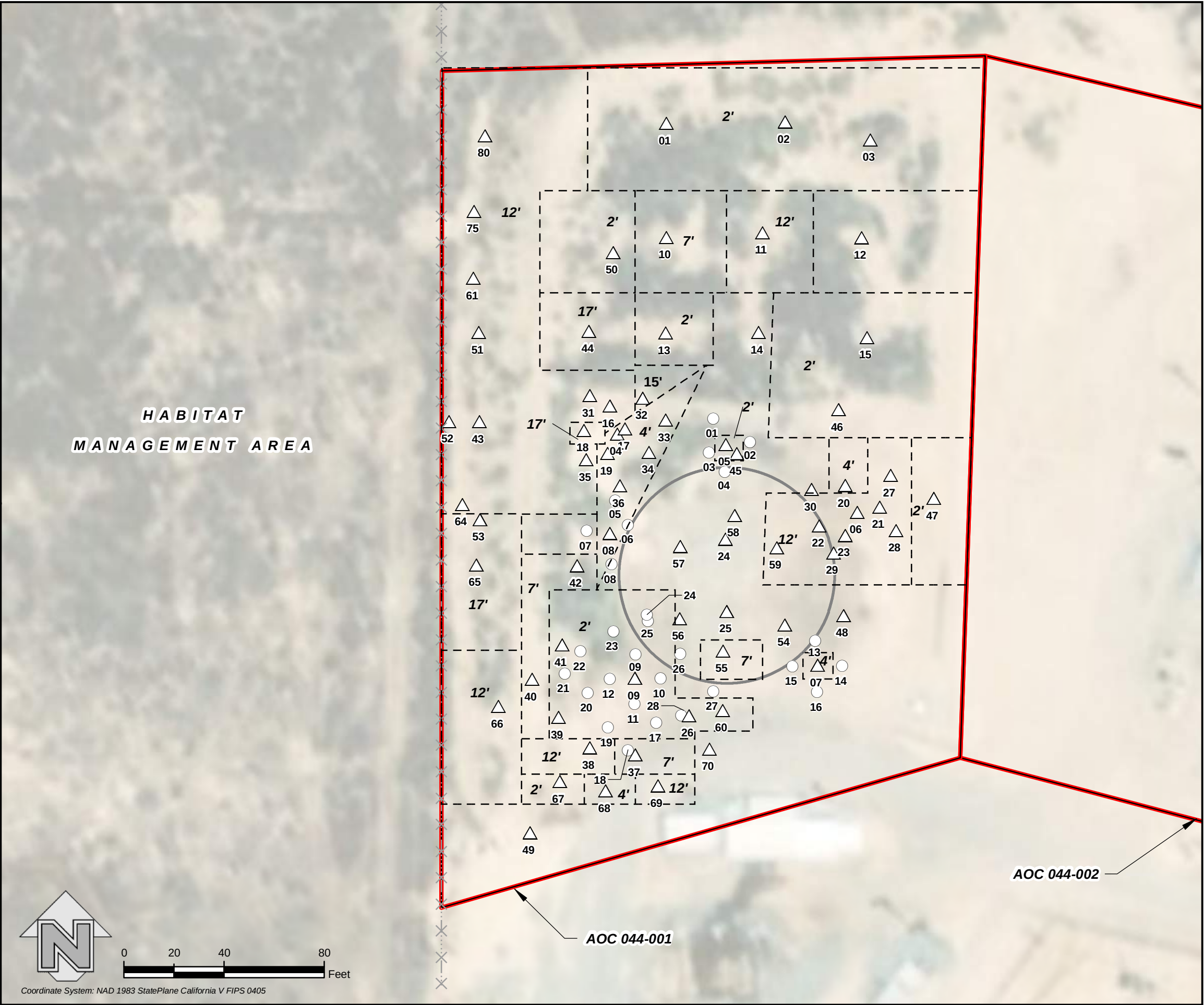
* Sample location ID in map label contains the last two characters of the complete ID. A044_01_DU01_SB/SS01 = 01.

AOC 044-001 COC RESULTS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 044-001	23S	4.0-1



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P. 916.403.5300 www.afsiak.com F. 916.329.1590
3100 Beacon Boulevard
West Sacramento, CA 95691



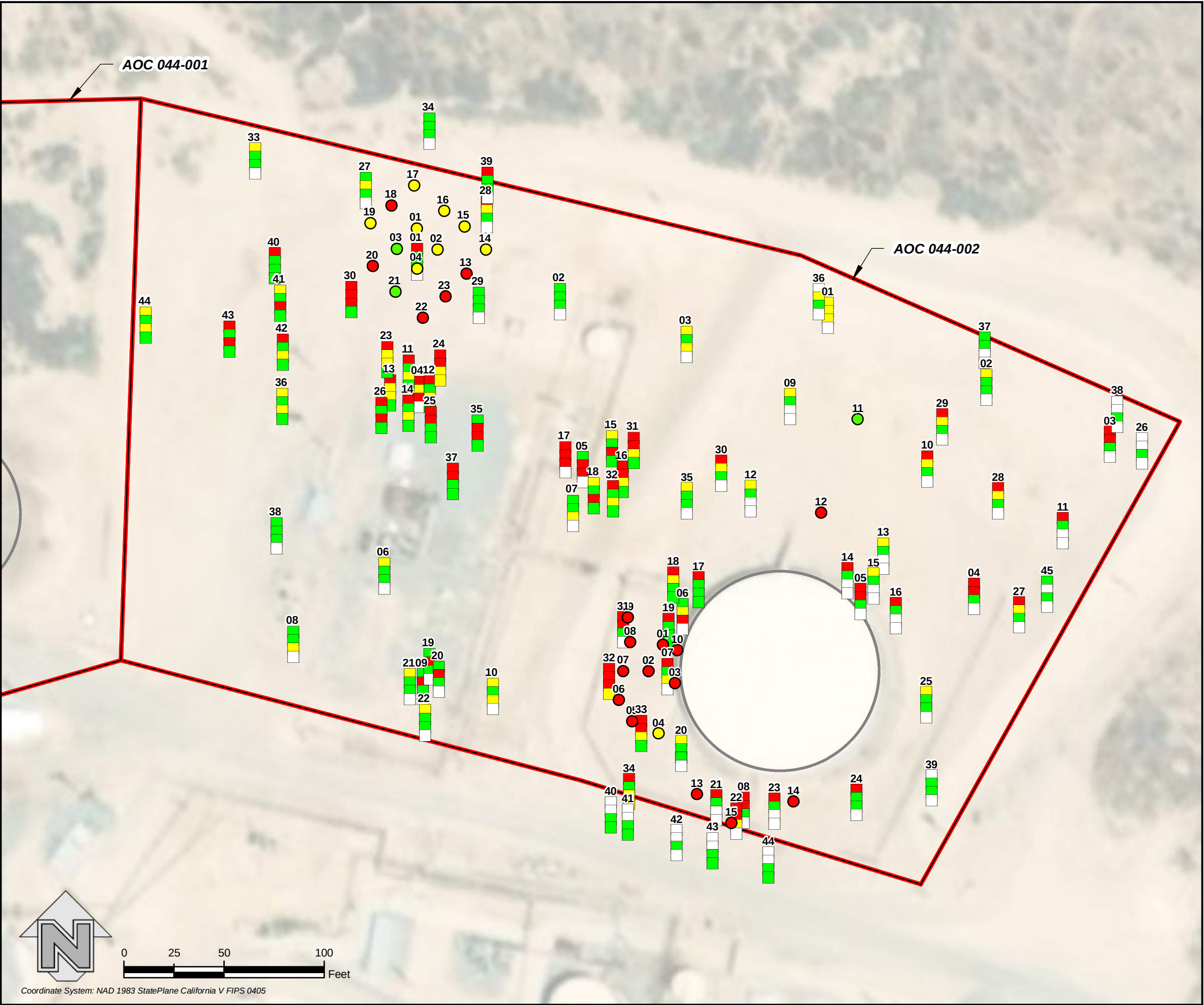
Legend

- 12'** Depth of Impacted Soil
- Fence
- Impacted Area
- Soil Boring
- Surface Sample
- Approximate Location of Former Tank Setting
- Preliminary Area of Concern Boundary

- Notes**
- Aerial photography provided by Kern County, CA, 2011.
 - Survey data provided by DOE, 2011.
 - Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
 - AOC 044-001 boundary is preliminary and subject to change.
 - Former tank location sourced from historical aerial photography provided by Kern County (1981).
- * Sample location ID in map label contains the last two characters of the complete ID. A044_01_DU01_SB01 = 01.

AOC 044-001 AREA EXCEEDING CLEANUP GOAL

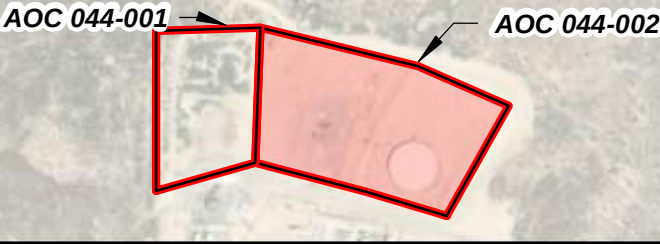
FORMER NAVAL PETROLEUM RESERVE NO.1		
KERN COUNTY, CALIFORNIA		
Location	Section Designator	Figure No.
AOC 044-001	23S	4.1-1



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Legend

07 - Location ID*

Soil Boring

Surface Sample

Soil Boring Depth Range

- 0-0.5 ft bgs
- >0.5-3 feet bgs
- >3-11 ft bgs
- >11-23 ft bgs

Analytical Result

- No Data Within Depth Range
- Arsenic Result < Background Level (16 mg/kg)
- Arsenic Result > Background Level (16 mg/kg) and < Action Level (26 mg/kg)
- Arsenic Result ≥ Action Level (26 mg/kg)
- Arsenic Result < Background Level (16 mg/kg)
- Arsenic Result > Background Level (16 mg/kg) and < Action Level (26 mg/kg)
- Arsenic Result ≥ Action Level (26 mg/kg)

- Approximate Location of Tank Setting
- Preliminary Area of Concern Boundary

Notes

- Aerial photography provided by Kern County, CA, 2011.
 - Survey data provided by DOE, 2011.
 - Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
 - AOC 044-002 boundary is preliminary and subject to change.
 - Arsenic results are from the 2014 RFI and the 2017-2018 Supplemental Sampling Investigation.
- * Sample location ID in map label contains the last two characters of the complete ID. A044_02_DU01_SB/SS01 = 01.

AOC 044-002 COC RESULTS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 044-002	23S	5.0-1

AOC 044-001

AOC 044-002

Legend

- 2' Depth of Impacted Soil
- △ Soil Boring
- Surface Sample
- Approximate Location of Tank Setting
- - - Impacted Area
- ▭ Preliminary Area of Concern Boundary

Notes

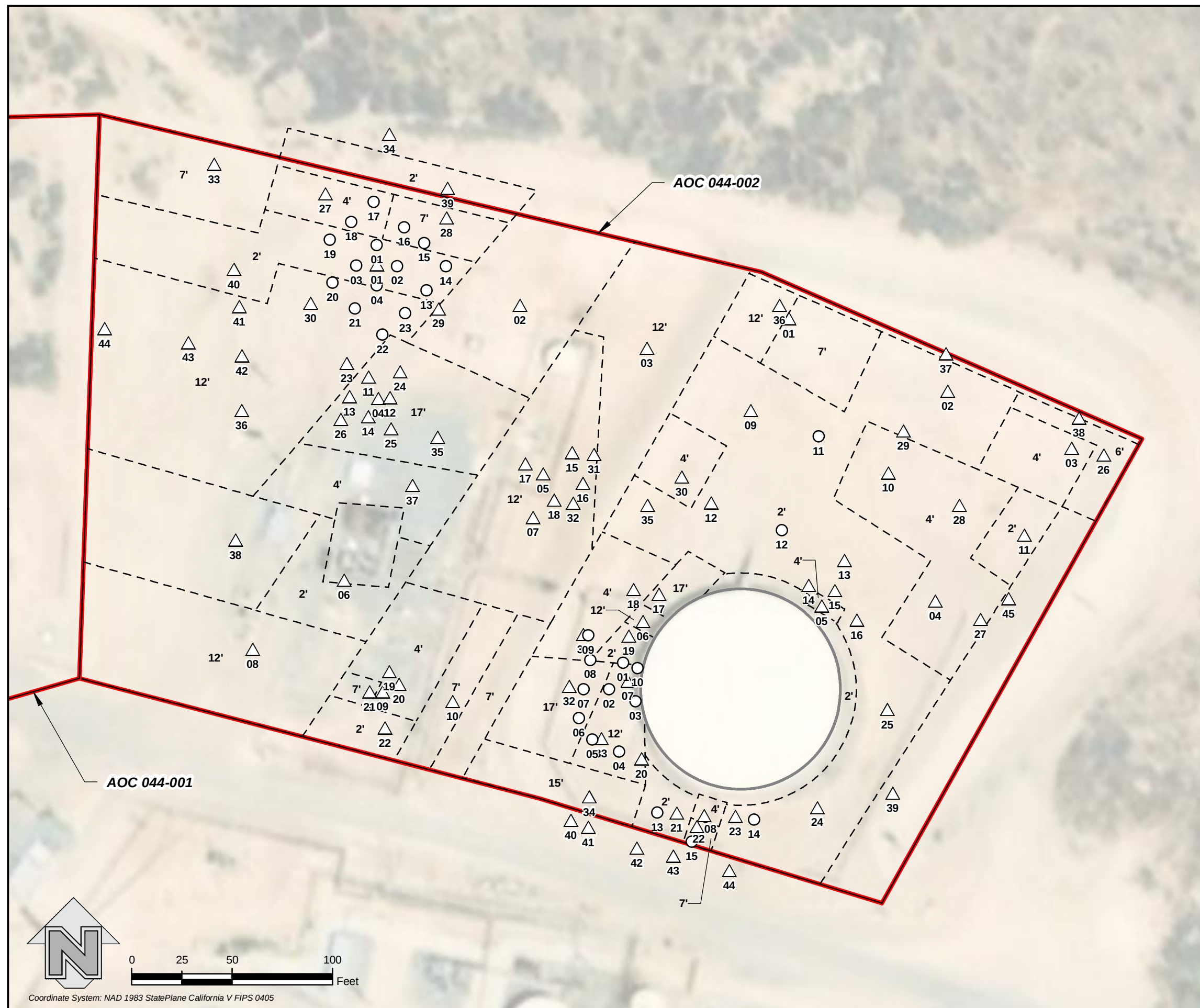
1. Aerial photography provided by Kern County, CA, 2011.
 2. Survey data provided by DOE, 2011.
 3. Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
 4. AOC 044-002 boundary is preliminary and subject to change.
 5. Arsenic results are from the 2014 RFI and the 2017-2018 Supplemental Sampling Investigation.
- * Sample location ID in map label contains the last two characters of the complete ID. A044_02_DU01_SB/SS01 = 01.

AOC 044-002 AREA EXCEEDING CLEANUP GOAL

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

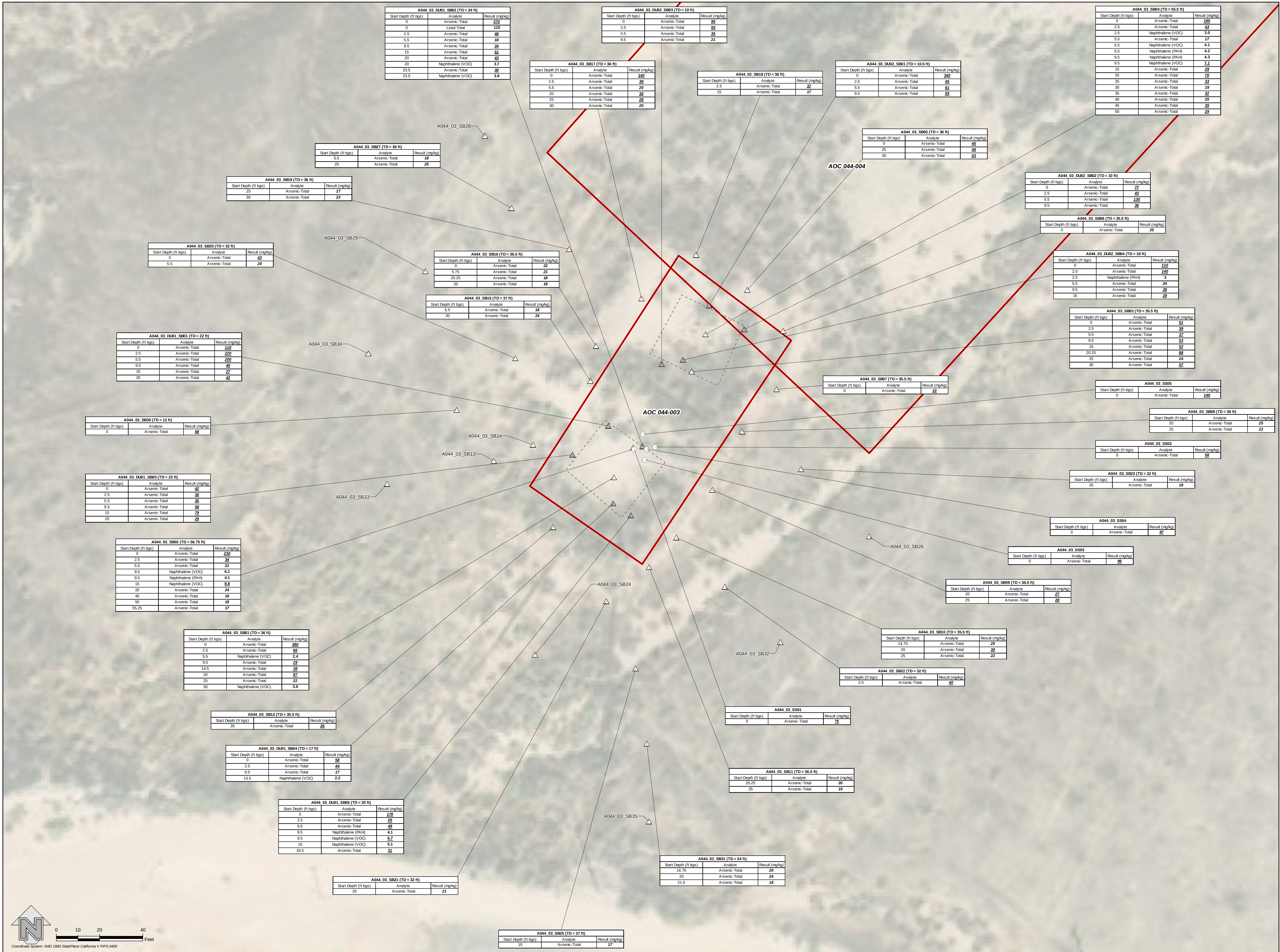
Location	Section Designator	Figure No.
AOC 044-002	23S	5.1-1



AOC 044-003, -004 and -005

Reference

Ahtna, 2021. *Draft Remedy Selection and Statement of Basis AOC 044-003, AOC 044-004, and AOC 044-005*. 11 January.



Ahtna

Facility Services, Inc.

P. 916.403.5300

www.ahtna.com

F. 916.328.1590

3100 Beacon Boulevard

West Sacramento, CA 95691

AOC 044-004

MW1-23S

AOC 044-005

AOC 044-003

AOC 044-002

AOC 044-001

5-321WD-26S

△

Soil Boring (2020)

▲

Soil Boring (2014)

○

Surface Soil Sample (2020)

●

Well

⊙

Sump

Preliminary Area of Concern Boundary

Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic - Total	16	25
Lead - Total	60	320
Naphthalene	2.0	6.8

Notes

1. Aerial photography provided by Esri Online World Imagery, accessed January 2021.

2. Survey data provided by DOE, 2011.

3. Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.

4. AOC 044-003 boundary is preliminary and subject to change.

5. TD = total depth of soil boring below ground surface

AOC 044-003 SAMPLE RESULTS

EXCEEDING SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location

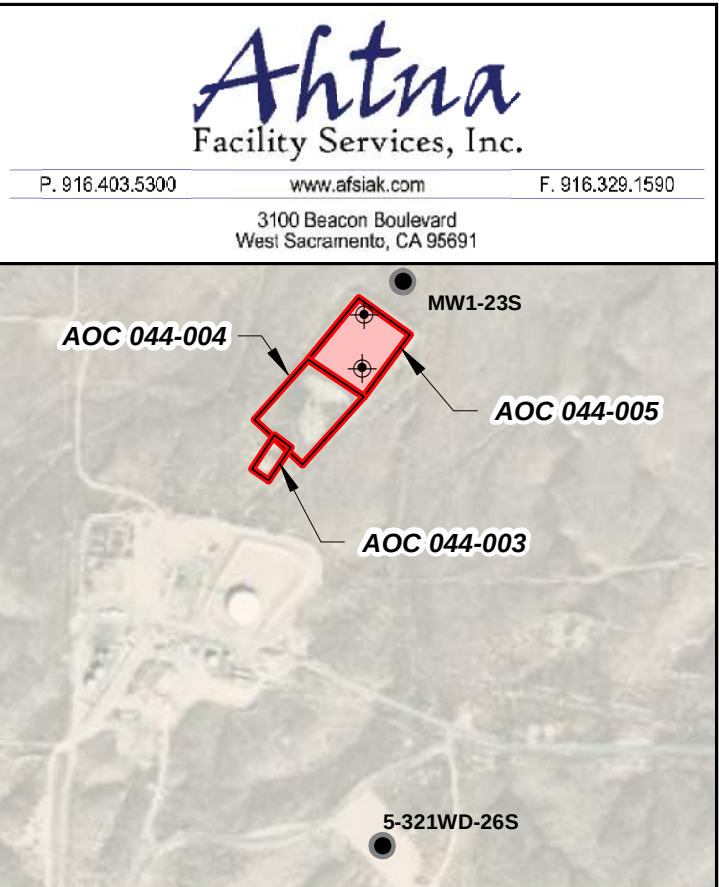
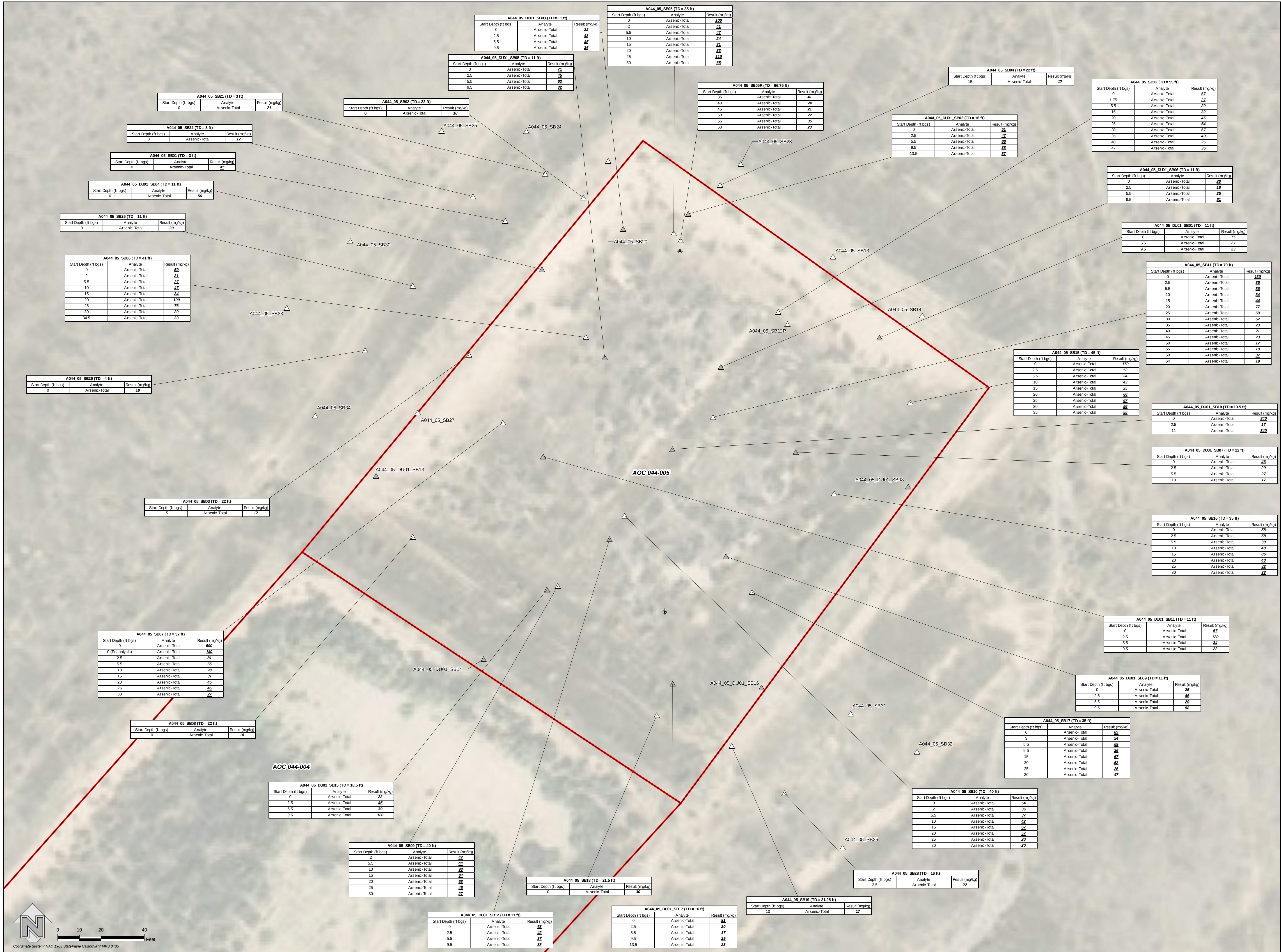
Section Designator

Figure No.

AOC 044-003

23S

A3.1-1



AOC 047-001

Reference

Ahtna, 2019. *Draft Interim Measures/Removal Action Work Plan AOC 047-001*. 5 April.

Legend

- 8' Depth of Impacted Soil
- ▲ Soil Boring (Langan, 2012)
- △ Soil Boring (AFSI, 2018)
- ▲ Soil Boring (AFSI, 2013)
- Impacted Area
- Decision Unit Boundary
- Preliminary Area of Concern Boundary

Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	<u>26</u>
Analyte	Residential (mg/kg)	Commercial/Industrial (mg/kg)
Cadmium-Total	5.2	<u>7.3</u>

Notes:

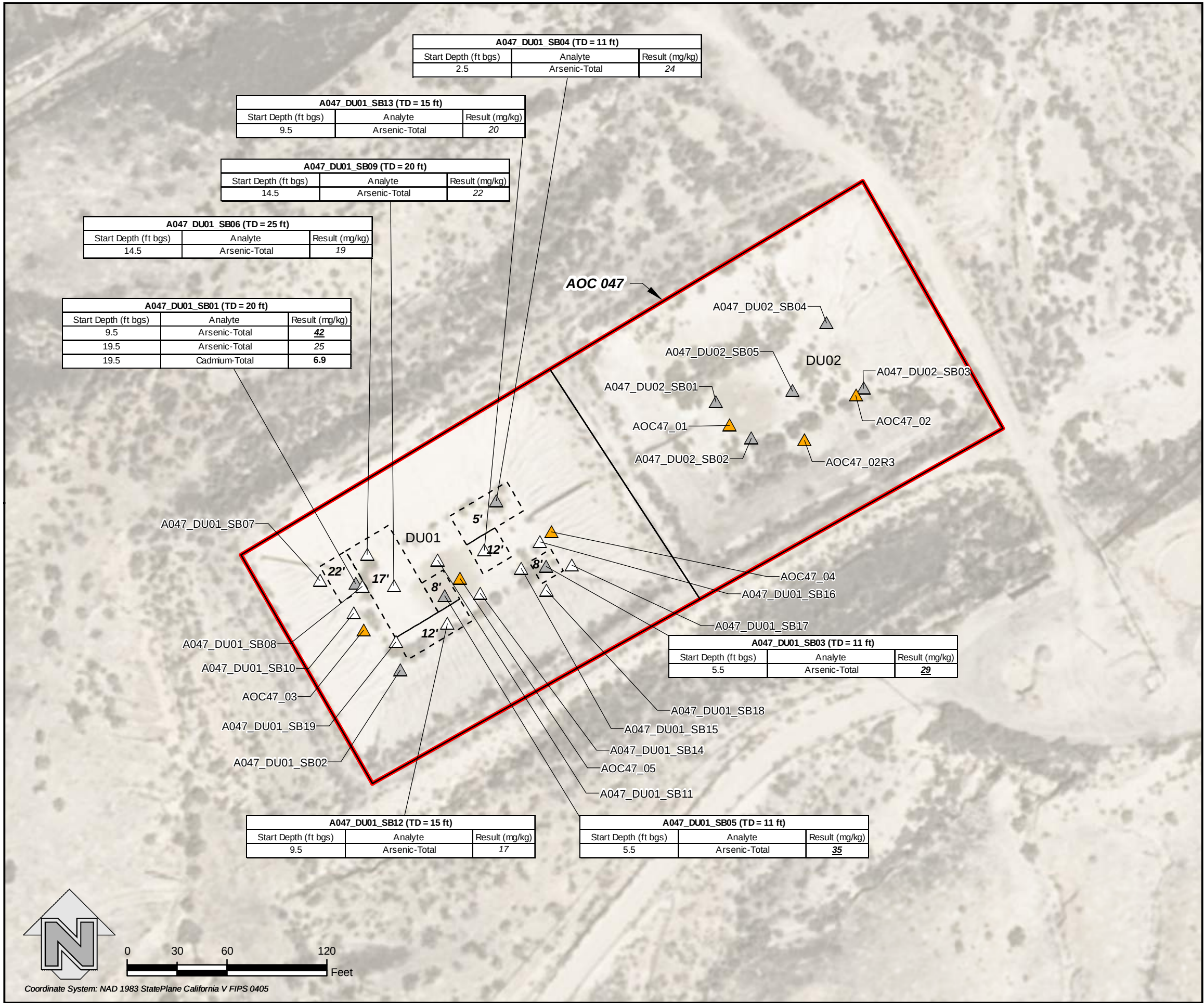
- Aerial photography provided by Kern County, CA, 2011.
- Survey data provided by DOE, 2011.
- Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC 047 boundary is preliminary and subject to change.
- TD = total depth of soil boring below ground surface.

AOC 047 DU01 SAMPLE RESULTS
EXCEEDING SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

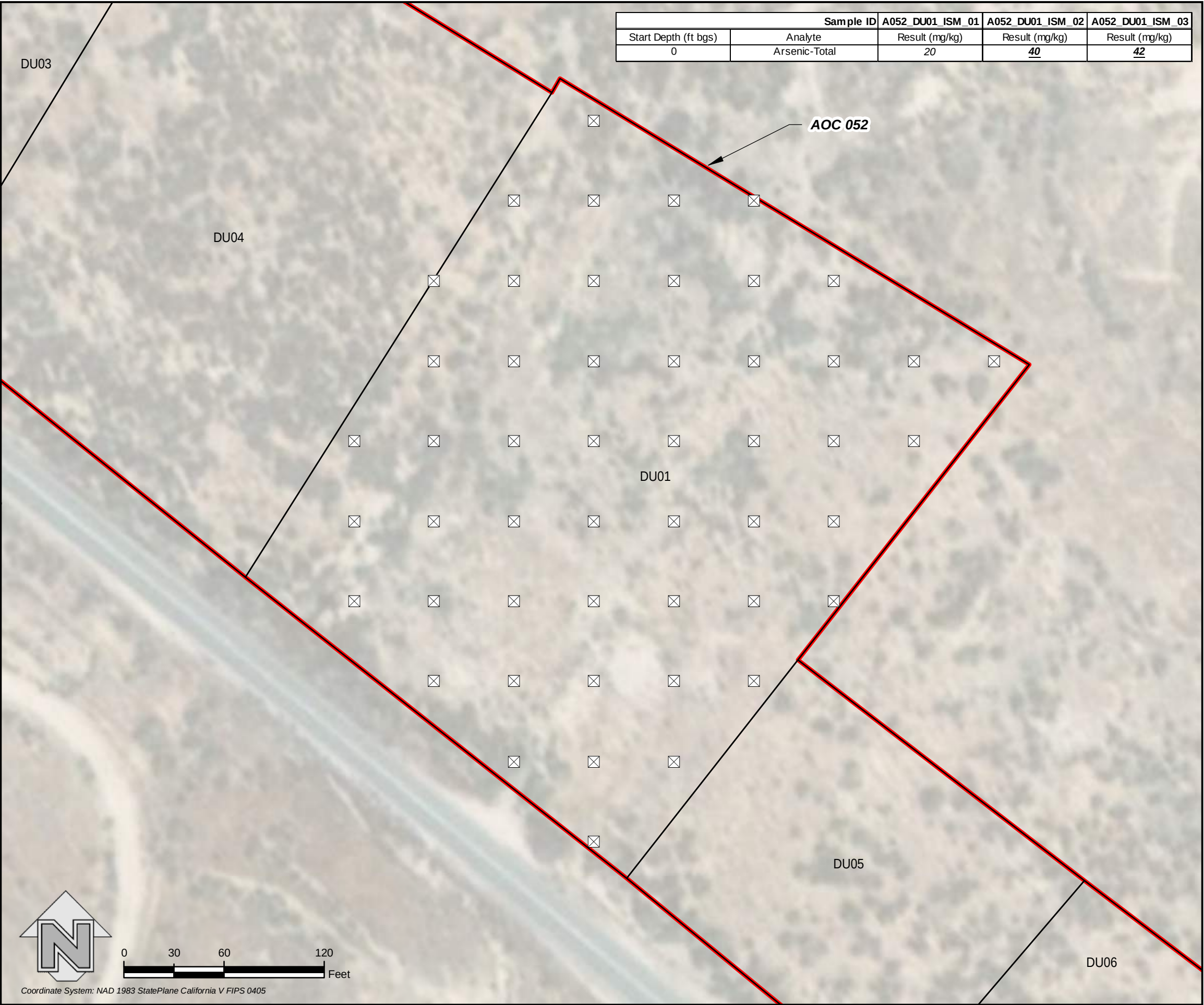
Location	Section Designator	Figure No.
AOC 047	24Z	1



AOC 052

Reference

Ahtna, 2020. *Supplemental Sampling Plan AOC 052*. 26 March.



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3100 Beacon Boulevard
West Sacramento, CA 95691

AOC 052

Legend

Approximate Location of ISM Aliquot

Decision Unit Boundary

Preliminary Area of Concern Boundary

Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	<u>26</u>

Notes:

1. Aerial photography provided by Kern County, CA, 2011.

2. Survey data provided by DOE, 2011.

3. Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.

4. AOC 052 boundary is preliminary and subject to change.

2014 AOC 052 DU01 SAMPLE LOCATIONS AND RESULTS EXCEEDING SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 052	25S	2.0-1

AOC 053

Reference

Ahtna, 2020. *Draft Remedy Selection and Statement of Basis AOC 053*. 28 August.



Ahtna

Facility Services, Inc.

P. 916.403.5300www.ahtna.com3100 Beacon BoulevardWest Sacramento, CA 95691F. 916.329.1599

382-255

AOC 053

Legend

4' Depth of Impacted Soil (ft bgs)

○ Surface Sample

07 Location ID*

⊕ Well

△ Soil Boring

✕ ✕ Fence Line Between Former NPR-1 and State of California Property

Approximate Location of Ditch

Impacted Area (Hazardous)

Impacted Area (Non-hazardous)

Preliminary Area of Concern Boundary

Notes

1. Aerial photography provided Kern County, CA, 2011.

2. Survey data provided by DOE, 2011.

3. Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.

4. AOC boundary is preliminary and subject to change.

5. Sample location ID in map label contains the last two or three characters of the complete ID. AOC053_SB/SS01.

6. Sample location ID in map label contains the last seven characters of the complete ID. AOC053_DU0X_SB01.

AREA EXCEEDING CLEANUP GOAL

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

LocationAOC 053

Section DesignatorZ5S

Figure No.4.4-1

AOC 070-001

Reference

Ahtna, 2018. *RFI Implementation Report Addendum AOC 070-001*. 2 March.

A070_01_DU09_SB02		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.38</u>
0	Total Carbon Chain Range	<u>190000</u>
0	TPH - diesel	<u>29000</u>

A070_01_DU09_SB03		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.30</u>
0	Total Carbon Chain Range	<u>64000</u>

A070_01_DU09_SB06		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.77</u>
0	Total Carbon Chain Range	<u>220000</u>
0	TPH - diesel	<u>38000</u>

A070_01_DU09_SB01		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.54</u>
0	Total Carbon Chain Range	<u>190000</u>
0	TPH - diesel	<u>33000</u>

A070_01_DU09_SB04		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.69</u>
0	Total Carbon Chain Range	<u>220000</u>
0	TPH - diesel	<u>36000</u>

A070_01_DU09_SB05		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.25</u>
0	Total Carbon Chain Range	<u>62000</u>
2.5	Benzo(a)pyrene TEQ	<u>0.32</u>
2.5	Total Carbon Chain Range	<u>110000</u>

A070_01_DU09_SB12		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
2	Benzo(a)pyrene TEQ	<u>0.26</u>
2	Total Carbon Chain Range	<u>26000</u>

A070_01_DU09_SB14		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Total Carbon Chain Range	<u>21000</u>
2	Benzo(a)pyrene TEQ	<u>0.31</u>
2	Total Carbon Chain Range	<u>63000</u>

A070_01_DU09_SB13		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Total Carbon Chain Range	<u>53000</u>

A070_01_DU09_SB11		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.37</u>
0	Total Carbon Chain Range	<u>58000</u>
2.5	Total Carbon Chain Range	<u>28000</u>

A070_01_DU09_SB15		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.28</u>
0	Total Carbon Chain Range	<u>190000</u>

A070_01_DU09_SB09		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene	<u>0.52</u>
0	Benzo(a)pyrene TEQ	<u>1.1</u>
0	Dibenz(a,h)anthracene	<u>0.43</u>
0	Total Carbon Chain Range	<u>150000</u>
0	TPH - diesel	<u>34000</u>

A070_01_DU09_SB17		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Total Carbon Chain Range	<u>62000</u>

A070_01_DU09_SB07		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.24</u>
0	Total Carbon Chain Range	<u>77000</u>

A070_01_DU09_SB08		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene TEQ	<u>0.37</u>
0	Total Carbon Chain Range	<u>120000</u>

A070_01_DU09_SB10		
Start Depth (ft bgs)	Analyte	Result (mg/kg)
0	Benzo(a)pyrene	<u>0.24</u>
0	Benzo(a)pyrene TEQ	<u>0.72</u>
0	Dibenz(a,h)anthracene	<u>0.37</u>
0	Total Carbon Chain Range	<u>57000</u>

Legend

-  Previous Sample Location (Langan 2011)
-  Soil Boring Location
-  Excavation Boundary
-  Preliminary Area of Concern Boundary

Screening Levels

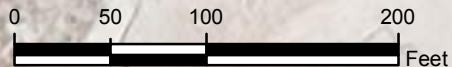
Analyte	Commercial/Industrial (mg/kg)
Benzo(a)pyrene	0.21
Benzo(a)pyrene TEQ	0.21
Dibenz(a,h)anthracene	0.21
Total Carbon Chain Range	18000
TPH - diesel	18000

Notes:

- Aerial photography provided by Kern County, CA, 2011.
- Survey data provided by DOE, 2011.
- AOC 070-001 preliminary boundary surveyed by AFSI, 2015.
- AOC 070-001 and 070-002 boundaries are preliminary and subject to change.
- Previous sample locations provided by Langan Engineering & Environmental Services, Inc.
- Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- Bold and Underlined** value indicates result greater than Commercial/Industrial Screening Levels.



Coordinate System: NAD 1983 StatePlane California V FIPS 0405



Ahtna
Facility Services, Inc.

P. 916.403.5300

www.afsiek.com

F. 916.329.1590

3100 Beacon Boulevard
West Sacramento, CA 95691

AOC 070-001 SAMPLE RESULTS EXCEEDING COMMERCIAL/INDUSTRIAL SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

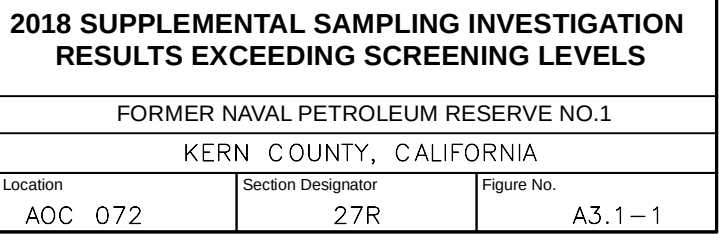
KERN COUNTY, CALIFORNIA

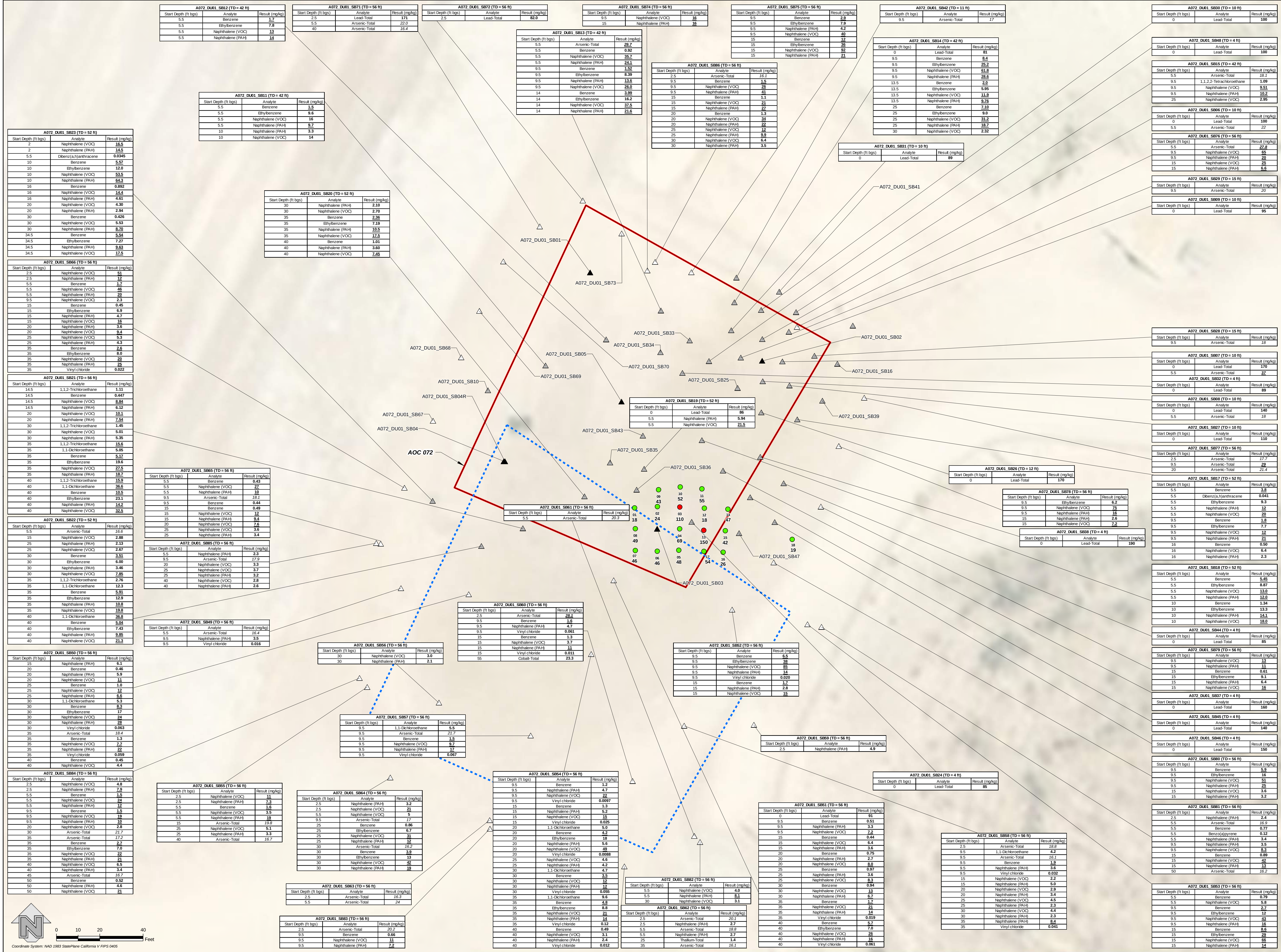
Location	Section Designator	Figure No.
AOC 070-001	27R	Draft

AOC 072

Reference

Ahtna, 2020. *Draft Remedy Selection and Statement of Basis AOC 072*. 17 September.

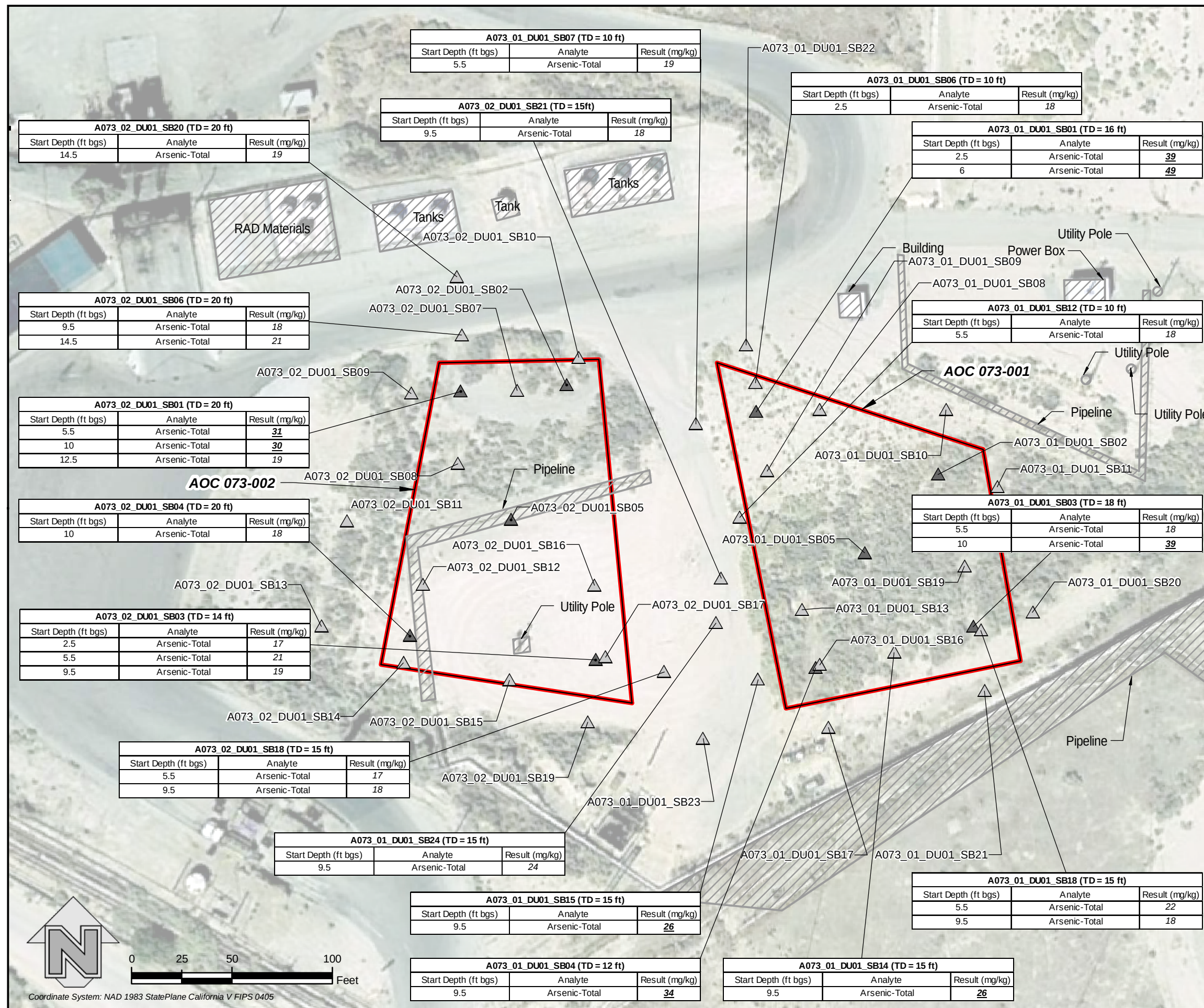




AOC 073-001 and -002

Reference

Ahtna, 2020. *Draft Remedy Selection and Statement of Basis AOC 073-001 and AOC 073-002*. 21 August.



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West Sacramento, CA 95691

Legend

- Soil Boring (2018)
- Soil Boring (2015)
- Inaccessible Area
- Preliminary Area of Concern Boundary

Screening Levels

Analyte	Background (mg/kg)	Action Level (mg/kg)
Arsenic-Total	16	26

Notes

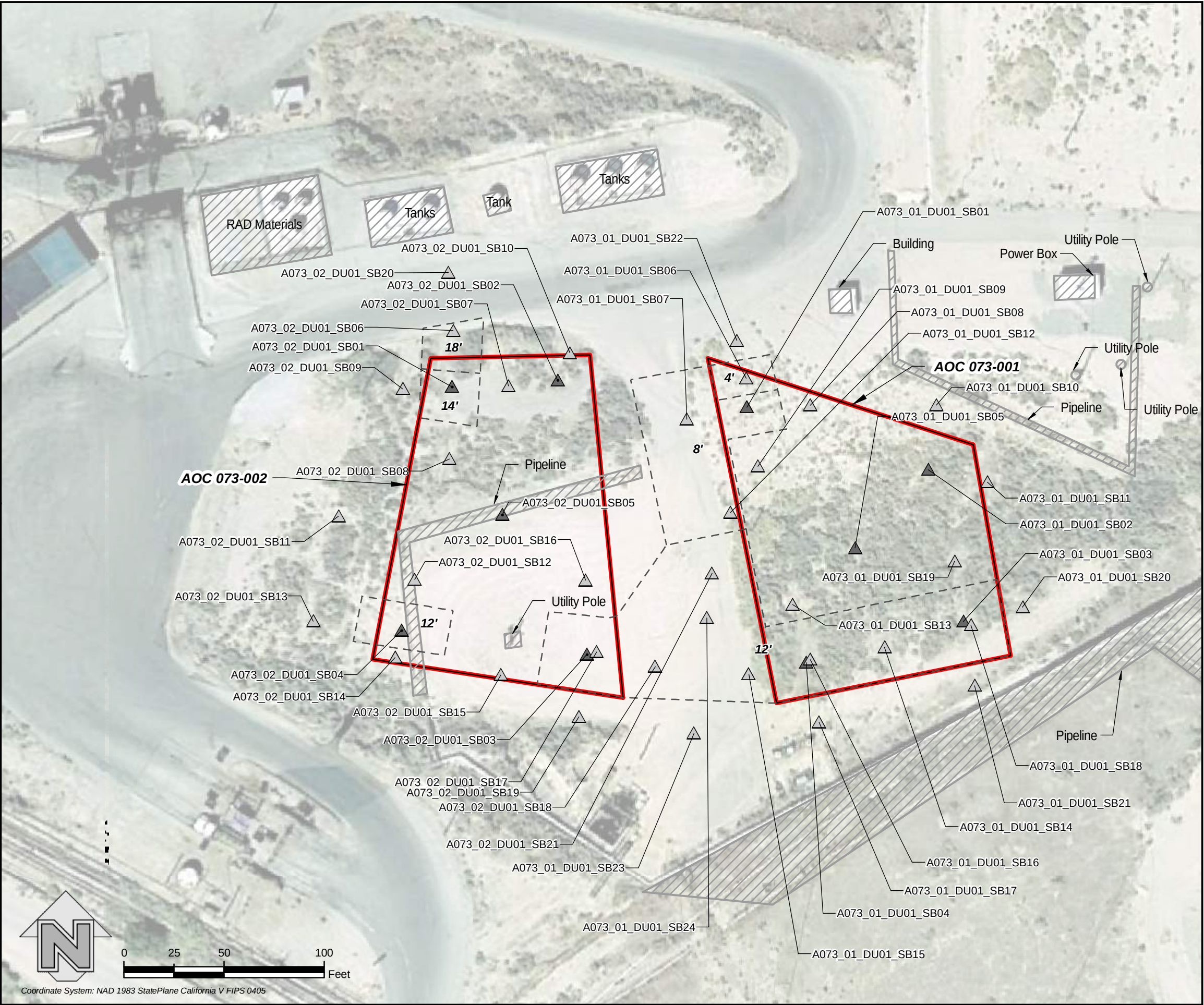
- Aerial photography provided by Google Earth, 2018.
- Survey data provided by DOE, 2011.
- Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.
- AOC boundaries are preliminary and subject to change.
- TD = Total depth of soil boring below ground surface.

COC RESULTS EXCEEDING SCREENING LEVELS

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location	Section Designator	Figure No.
AOC 073-001	27R	3.0-1
AOC 073-002		



Ahtna

Facility Services, Inc.

P. 916.403.5300

www.afsiak.com

F. 916.329.1590

3100 Beacon Boulevard

West Sacramento, CA 95691

AOC 074-003

AOC 073-001

AOC 073-002

AOC 074-002

Legend

8'

Estimated Excavation Depth (ft bgs)

▲

Soil Boring (2018)

▲

Soil Boring (2015)

- - -

Impacted Area

▨

Inaccessible Area

▭

Preliminary Area of Concern Boundary

Notes

1. Aerial photography provided by Google Earth, 2018.

2. Survey data provided by DOE, 2011.

3. Soil samples located using Trimble GeoXH receiver with Virtual Reference Station real-time data correction.

4. AOC boundaries are preliminary and subject to change.

AREAS EXCEEDING CLEANUP GOAL

FORMER NAVAL PETROLEUM RESERVE NO.1

KERN COUNTY, CALIFORNIA

Location

AOC 073-001

AOC 073-002

Section Designator

27R

Figure No.

4.4-1